College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Social network analysis of cellphone surveillance data for Ebola for Sierra Leone**
Author(s):	J.B. Kangbai, Department of Epidemiology, U of Kentucky

Abstract: Background: The explosive Ebola outbreak (EVD) in West Africa in 2014 generated greater global public health threat than previous outbreaks and by mid-March 2015 Sierra Leone has accumulated the largest number of Ebola cases exceeding that of Guinea and Liberia combined. Methods: This study involves an analysis of the Ebola surveillance data collected at a call center in Sierra Leone from October 2014 through May 2015. The study used social network analysis to explore and visualize the connectivity of callers who made cellphone calls about suspected Ebola cases in Moyamba District in southern Sierra Leone. Poisson and logistic regression analyses were used to determine the factors associated with the number and efficiency of Ebola surveillance calls respectively. Result: Surveillance data for 393 suspected Ebola cases (192 males, 201 females) were collected from October 23, 2014 to June 28, 2015 using cellphone technology. There entire social network constructed comprised of 393 ties with 745 nodes covering 253 villages. The Poisson regression result shows that men make more Ebola surveillance calls than women controlling for the week and the Ebola prevalence of the village where calls were made. The global test (Type III analyses) produced a statistically significant result for gender (p-value=<0.0002) and week (p-value=<0.0001). The Logistic regression result shows women to be efficient Ebola surveillance callers than men even though they made fewer calls. Conclusion: Social network visualization can be used to analyze syndromic surveillance data for Ebola collected by cellphone technology and can yield unique insights.

Supported by:

Primary Presenter / email: **Kangbai, J.B.** / jia.kangbai@uky.edu
Epidemiology
MPH/MHA

Mentor / e-mail: Young, A. / april.young@uky.edu

College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Correlates of Antibiotic Diversion in the Philippines: Misconceptions and Community-Level Access to Nonmedical Sources of Antibiotics**
Author(s):	D. Barber, Department of Epidemiology, U of Kentucky A. Young, Department of Epidemiology, U of Kentucky E. Casquejo, Island Ventures Inc., Philippines P. Ybanez, Island Ventures Inc., Philippines M. Pinote, Island Ventures Inc., Philippines L. Casquejo, Island Ventures Inc., Philippines L. Pinote, Island Ventures Inc., Philippines D. Estorgio, Island Ventures Inc., Philippines

Abstract: Aim: To identify sociodemographic, knowledge, and attitudinal correlates to antibiotic diversion among a community-based sample of adults (age 18 and older) in a low-income setting of the Philippines and to explore community-level data on informal antibiotic distribution in sari-sari stands. Methods: Participants (n=307) completed self-administered surveys. Correlates to antibiotic diversion were assessed using logistic regression with Firth's bias-adjusted estimates. Availability and characteristics of antibiotics in the sari-sari stands (n=106) were observed through site visits. Results: A majority (78%) had shared antibiotics in their lifetime, most often with family members. In multivariable analysis, agreement with the belief that it is safe to prematurely stop an antibiotic course (OR: 2.8, CI: 1.3-5.8) and concerns about antibiotic side effects (OR: 2.1, CI: 1.1-4.4) were significantly associated with increased odds of reported antibiotic diversion. Antibiotic diversion was not associated with sociodemographic characteristics or antibiotic knowledge. Antibiotics were widely available in sari-sari stores (60%), where antibiotic expiration dates were often unaccounted for (59%), and a full course of antibiotics was usually unavailable (68%). Conclusions: Antibiotic diversion was common and was associated with misconceptions about proper antibiotic use. Antibiotics were widely available in sari-sari stands, but usually without expiration information or full dosages. Although more research is needed, it is clear that efforts to curb antibiotic resistance must include an understanding of location-specific antibiotic misconceptions and individual access to legitimate pharmaceutical outlets.

Supported by: Clinton Global Initiative University Charles T. Wethington Endowment

Primary Presenter / email: **Barber, D.** / daniel.barber@uky.edu
Epidemiology
MPH/MHA

Mentor / e-mail: Young, A.M. / april.young@uky.edu

College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Trajectories Identifying robust-Normal, Prodromal-Normal and Not-Normal Participants At Baseline Using CERAD T-scores and Premorbid Estimates of Cognitive Ability**
Author(s):	F. Appiah, College of Public Health, U of Kentucky E. Abner, College of Public Health, U of Kentucky

Abstract: Because neurodegenerative diseases, like Alzheimer's disease, can have preclinical periods that last many years, participants enrolled in studies as cognitively normal may transition within a few years. This can cause problems for biomarker studies when samples from such participants are included as "control" samples. Non-invasive methods to identify cognitively normal participants who are destined for cognitive impairment are needed. The current study re-evaluated the baseline cognitive status of 305 autopsied participants in the University of Kentucky Alzheimer's Disease Center (UK ADC) study and focused on identifying robust normal, prodromal normal and non-normal trajectories for predicting future cognitive status based on the CERAD neuropsychological battery T score. T score distribution change was examined with the Wilcoxon sum rank test. Correlation coefficients and chi-square statistics were used to examine associations of interest. Normal mixture models were fitted to the baseline T score data, and the number of components was selected with AIC, BIC and sBIC. Posterior probabilities of the participants were validated in Cox regression. The model selected new cut-off points for the three risk strata as follows: robust normal group (T score>=55), prodromal normal group (48<=T score<=52) and non-normal (T score<=35) group. The c-statistic after adjusting for age, gender, MMSE and education in the Cox model was 70%. The posterior probabilities predicted 123 (43%) of the 284 cognitively intact persons at baseline, will remain normal. We conclude that CERAD T score values may be used to predict future cognitive status of persons who are presently cognitively normal.

Supported by: University of Kentucky Alzheimer's Disease Center (UK ADC)

Primary Presenter / email: **Appiah, F.** / frank.appiah@uky.edu
Biostatistics
PhD

Mentor / e-mail: Abner, E. / erin.abner@uky.edu

College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Health Considerations in Late-Life Cancer Survivors**
Author(s):	A.I. Hoogland, Graduate Center for Gerontology, U of Kentucky

Abstract: Psychosocial outcomes following a cancer diagnosis have been studied in general population samples and young adults, but little research has explored such phenomena in older adults. Older adults are at an increased risk of suffering from multiple morbidities, and late-life cancer survivors may be especially prone to declining physical/mental health. The objective of this research was to assess health in older adults with cancer using a population-based sample of older adults within the state of Kentucky. Fifty-one participants (Mean age = 72.55) with cancer were recruited through the Kentucky Cancer Registry, and completed surveys with several validated questionnaires (including the SF-12 and the Flourishing Scale). Normed physical health scores (PCS) were below national norms for older adults (Mean: 37.39 vs. 43.7; $p < .001$), whereas normed mental health scores (MCS) were above national norms for older adults (Mean: 55.23 vs. 52.1; $p < .05$). Perhaps surprisingly, self-reported well-being was high, and unrelated to personal significance of the cancer diagnosis ($r = -.14$, $p = .35$). Results support the idea that late-life cancer survivors experience heightened mental health and well-being, even in light of declining or poor health.

Supported by: Funding was provided by UK's Department of Behavioral Science, College of Public Health, and the Medical Center/Provost's Office. Data used in this presentation were provided by the Kentucky Cancer Registry, Lexington, KY.

Primary Presenter / email: **Hoogland, A.I.** / aasha.anderson@uky.edu
Gerontology
PhD

Mentor / e-mail: Watkins, J.F. / john.watkins@uky.edu

College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Alarming increases in newborn Hepatitis C exposure rates linked to increasing opioid use during pregnancy in the UK neonatal intensive care unit**
Author(s):	J. T. Perkins, College of Public Health, U of Kentucky S. deGraaff, Department of Pediatrics-Neonatology, U of Kentucky H. Bada-Ellzey, Department of Pediatrics-Neonatology, U of Kentucky

Abstract: Hepatitis C virus (HCV), a major cause of liver disease worldwide, has seen an increase in infection rates in United States as well as Kentucky. The major route of transmission is through exposure to infected blood, often as a result of drug use. While no longer untreatable, the cost greatly hinders access to treatment. An often overlooked consequence of HCV is the potential for vertical transmission to newborns during pregnancy. In HCV infected women, vertical transmission rates are estimated to be between 4.3% and 6.6%, which increases significantly in mother's who are also HIV positive. Analysis of hospital admissions records at the UK Neonatal Intensive Care Unit (NICU) have shown that newborns born to HCV+ mothers have risen 243.29% (43.01 to 147.65 per 1,000 admissions) between 2011 and 2015. Additionally, 87.33% of the HCV+ mothers had reported opioid use. Overall, mothers using opioids during pregnancy has increased by 132.05% (163.98 to 292.40 per 1,000 admissions), which has corresponded with a 129.31% increase in diagnosed neonatal abstinence syndrome (99.46 to 228.07 per 1,000 admissions). This study reports on the dramatic admission statistics in the UK NICU from 2011-2015 and shows that the consequences of the increasing prevalence of opioid use extends to an additional population of vulnerable newborns. Children with opioid using mothers are at an increased risk for developing neonatal abstinence syndrome as well as potential HCV exposure, both of which will have long term health consequences.

Supported by:

Primary Presenter / email:	**Perkins, J.T.** / jordantperkins@gmail.com **Epidemiology** **MPH/MHA**
Mentor / e-mail:	Bada-Ellzey, H. / hbada2@email.uky.edu

College of Public Health Research Day
Oral Presentation Abstracts

Abstract Title:	**Correlates of Hepatitis C Serostatus Disclosure in Rural Appalachian Kentucky**
Author(s):	M.G. Hofmeister, Dept. of Preventive Medicine and Environmental Health, U of Kentucky A.M. Young, Dept. of Epidemiology and Center on Drug and Alcohol Research, U of Kentucky J.R. Havens, Center on Drug and Alcohol Research, U of Kentucky

Abstract: Aim: To identify demographic, behavioral, and interpersonal characteristics associated with hepatitis C (HCV) serostatus disclosure among adult, rural, high-risk people who use drugs (PWUD) in Appalachian Kentucky. Methods: Laboratory confirmed HCV antibody-positive participants (n=243), drawn from the fifth follow-up assessment of a longitudinal study of rural PWUD, completed interviewer-administered questionnaires eliciting demographic and interpersonal characteristics, risk behaviors, and information on HCV disclosure. Correlates of HCV disclosure were assessed using logistic regression. Results: Most (69.1%) reported disclosing their HCV-positive status to at least one of their social referents (current or past sex partners, current or past injection drug use (IDU) partners, family, friends, or spouse), but few told the people with whom they inject drugs (3.8% disclosed to current, and 1.4% disclosed to past IDU partners). In multivariate analysis, adjusting for confounders and time since HCV diagnosis, male gender (AOR=0.40, 95% CI [0.20, 0.78]), older age (AOR=0.96, 95% CI [0.92, 1.00]), lifetime history of injection drug use (AOR=0.26, 95% CI [0.07, 0.99]), and lifetime history of drug treatment (AOR=0.34, 95% CI [0.18, 0.65]) were associated with decreased odds of HCV disclosure. Conclusions: While most participants reported HCV disclosure, the almost complete absence of disclosure to current or former injection drug use partners was concerning. Although further research is warranted, it is clear that interventions are needed to encourage HCV disclosure among those most at risk of transmitting, or becoming infected with, HCV.

Supported by: Funding for this study was provided by the National Institutes of Health, National Institute on Drug Abuse (Grant numbers R01DA024598 and R01DA033862, to Jennifer R. Havens).

Primary Presenter / email: **Hofmeister, M.G.** / megan.hofmeister@uky.edu
Epidemiology
MPH/MHA

Mentor / e-mail: Young, A.M. / april.young@uky.edu